

**REMARKS**

This Amendment is in response to the Examiner's non-final office action mailed on May 15, 2003. Claims 31-56 have been canceled without prejudice. Claim 1 and 5 have been amended. Claims 1-30 are pending.

Reconsideration of the application is respectfully requested in view of the above amendments to the claims and the following remarks.

**Rejection Under 35 U.S.C. 103(a):**

Claims 1, 2, 4, 5, 25-27 are rejected by the Examiner under 35 U.S.C. 103(a) as being unpatentable over Luo et al. (Kunchong Xuebao 40:358-365, 1997) and Mamedov (SU 232667, 5/6/69). Specifically, the Examiner states that Luo teaches that anabasine as well as aloperine are used to kill aphids; and Mamedov teaches a composition comprising polyoxyethylated alkyl phenol.

Independent claim 1 as amended specifies a pesticide which is a synergistic and pesticidally effective combination of two or more plant alkaloids selected from the group consisting of toosendanin, tomatine, stemonine, nicotine, anabasine, matrine, oxymatrine, sophocarpine, N-oxysophocarpine, cytisine, and aloperine.

In contrast, Luo et al. merely compared toxicities of 7 quinolizidine alkaloids **individually** against turnip aphids. *See* Abstract. As acknowledged by the Examiner, Luo et al. does not teach a single composition comprising both anabasine and aloperine; neither does this reference teach or suggest composition comprising polyoxyethylated alkyl phenol.

On the other hand, Mamedov merely discloses an emulsion of 1-phenyl-1-(decyl)-3-methoxypropane with an alkyl phenol-ethylene oxide wetting agent. *See* Abstract. Based on the information provided in the abstract of Mamedov, it is not clear whether alkyl phenol-ethylene oxide is the same as polyoxyethylated alkyl phenol as asserted by the Examiner. Further, this reference does not teach a pesticide comprising a combination of alkaloids, let alone suggesting a synergistic combination of two or more alkaloids in a water-miscible solvent at 20% by weight, as specified in claim 1.

To establish a prima facie case of obviousness, the Examiner bears the burden of proving

1) the prior art reference (or references when combined) must teach or suggest all the claim limitations; 2) the prior art contains a suggestion or motivation to combine the prior art references in such a way as to achieve the claimed invention; and 3) one of ordinary skill in the art at the time the invention was made would have reasonable expectation of success of the claimed invention. *In re Vaeck*, 947 F. 2d 488, 20 USPQ2d 1438 (Fed. Cir. 1991); *In re O'Farrell*, 853 F. 2d 894, 903-904, 7 USPQ2d 1673, 1681 (Fed. Cir. 1988); and *In re Dow Chem.*, 837 F. 2d 469, 473, 5 USPQ2d 1529, 1531 (Fed. Cir. 1988).

As discussed above, none of the cited references teaches or suggests a pesticide which is a synergistic combination of two or more alkaloids in a water-miscible solvent at 20% by weight. Obviousness cannot be established by combining the teachings of the prior art to produce the claimed invention, absent some teaching, suggestion or incentive supporting the combination.” *Carella v. Starlight Archery and Pro Line Co.*, 804 F.2d 135, 140, 231 USPQ 644, 647 (Fed. Cir. 1986). “[T]he factual inquiry whether to combine references must be thorough and searching.” *McGinley v. Franklin Sports, Inc.*, 262 F.3d 1339, 1351-52, 60 USPQ2d 1001, 1008 (Fed. Cir. 2001). This factual question cannot “be resolved on subjective belief and unknown authority,” *In re Lee*, 277 F.3d 1338, 1343-44, 61 USPQ2d 1430, 1434 (Fed. Cir. 2002).

Here, the Examiner proposes to combine teachings of Luo et al. with those of Mamedov because “one would have been motivated” to combine the alkaloids into a single composition “in order to enhance the overall effectiveness of each compound for the purpose of controlling aphids”; and “it would have been obvious to one having ordinary skill in the art to add polyoxyethylated alkyl phenol to the composition suggested by Luo”. As discussed above, Luo et al. merely compared toxicities of seven alkaloids individually; and Mamedov teaches a combination of 1-phenyl-1-(decyl)-3 methoxypropane with an alkyl phenol-ethylene oxide. There is no **objective evidence** showing that Luo et al. or Mamedov suggests that the alkaloids be combined and such a combination would be synergistic in its pesticidal activity.

The mere fact that teachings found in the prior art could be combined as proposed by an examiner does not make the combination obvious “absent some teaching, suggestion or incentive supporting the combination.” *Carella, supra*. In the instant application, the Examiner fails to provide **objective evidence from the cited references** showing any such teaching, suggestion, or incentive to support the proposed combination. Hindsight reconstruction using

the disclosure and claims in prosecution as a guide to pick and choose among isolated disclosures in the prior art to deprecate the claimed invention is not permitted. *In re Fine*, 837 F.2d 1071, 5 U.S.P.Q. 2d 1596 (Fed. Cir. 1988). References must be evaluated by ascertaining the facts fairly disclosed therein as a whole. It is impermissible to first ascertain factually what Applicants have done and then view the prior art in such a manner as to select from the random facts of that art only those which may be modified and then utilized to reconstruct Applicants' invention from such prior art. *In re Schuman*, 150 U.S.P.Q. (1966). **The references viewed by themselves and not in retrospect** must suggest what an applicant has done. *In re Schaffer*, 229 F.2d 476, 108 U.S.P.Q. 326 (1956) and *in re Skoll*, 523 F.2d 1392, 187 U.S.P.Q. 1981 (CCPA 1975). Emphasis added.

It is Applicants who have conceived and made pesticide that is a synergistic combination of two or more alkaloids. As shown in the Example section of the Specification on pages 30-31, a combination of alkaloids extracted from plants was demonstrated to have synergistic effects on killing cotton mites. As shown in Table VIII on page 31, the pesticidal activity (~90%) of the combination is much higher than any of the alkaloids applied individually (~40-60%) at the same concentration (1.8% w/w). Similarly, as shown in Table IX, a combination of alkaloids was demonstrated to have much higher pesticidal activity (~90%) than aloperine alone (~30%).


The cited references neither motivate one to modify Luo et al. in view of Mamedov to arrive at the combination of alkaloids, nor provides one with a reasonable expectation of success. Absent objective evidence showing such, a prima facie case of obviousness has not been established. Withdrawal of the rejection under 35 U.S.C §103(a) is therefore respectfully requested.

**CONCLUSION**

In light of the arguments set forth above, Applicants earnestly believe that they are entitled to a letters patent, and respectfully solicit the Examiner to expedite prosecution of this patent application to issuance. Should the Examiner have any questions, the Examiner is encouraged to telephone the undersigned.

Respectfully submitted,

Date: Oct. 15, 2003

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